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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,870	10/19/2001	Robert Boesnecker	32860-000181	8899

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EXAMINER	
FAULK, DEVONA E	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,870	BOESNECKER, ROBERT	
	Examiner	Art Unit	
	Devona E. Faulk	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 12/22/2005 have been fully considered but they are not persuasive.

The applicant asserts on page 6, that prior art Azima applies to the microphone use of the panel not the loudspeaker use. Prior art Azima teaches that the distributed mode panel (2, Figure 1-3) is used as both a loudspeaker and a microphone. Azima clearly discloses a method for operation of a loudspeaker (panel form loudspeaker, reads on a flat surface loudspeaker of claim 4), (column 5, lines 24-32). Also, with regards to Azima, the applicant asserts that Azima fails to teach how a signal is corrected and how that correction is applied to the output signal of the panel. The examiner agrees and asserts that prior art Makivirta taught of how a signal is corrected and applied.

In response to applicant's argument that the skilled artisan would have no reason to have been motivated to look to correct the input signal for the panel, the examiner asserts that the claim language does not recite specifically that the correction is done to the input signal for the panel.

In response to the applicant's argument that the skilled artisan would never have expected that equalization of the frequency response of a conventional type speaker system as disclosed in Makivirta may have similar effects when applied to a flat panel loudspeaker, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to

patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Azima teaches of a method for operation of a loudspeaker (panel form loudspeaker, reads on a flat surface loudspeaker of claim 4), in which at least one oscillating coil (9 transducer) is mounted on a surface in the form of a plate (sound radiating panel) having predetermined characteristics (Figure 3, obvious that the plate has some predetermined characteristics), comprising: stimulating at least one coil to oscillate electrically by a sound source (column 5, lines 15-17);and in an operating mode, compensating for the frequency response of the loudspeaker by the filter device, which is connected between the sound source and the loudspeaker (Figure 2B, column 5, lines 25-27),Azima teaches of a filter/correlator (64) and further teaches of a signal conditioner (65) to provider signal correction (column 5, lines 27-30) but fails to specifically teach of how the correction is implemented. Makivirta discloses a method and system for compensating a loudspeaker system, comprising: measuring the acoustic frequency response of the loudspeaker (64, filter/correlator, column 5, lines 25-26).determining a frequency curve based on the measured acoustic frequency response (4, wideband filter, column 5,lines 16-27);determining an inverse frequency curve to the frequency curve (column 1, lines 50-55; column 5, lines 16-26); simulating the inverse frequency curve in a filter device as a transfer function of the filter device (column 5, lines 16-26); and in an operating mode, compensating for the frequency response based upon the transfer function (column 3,lines 15-24)). The prior art structure is capable of performing the intended use.

2. The examiner is maintaining the rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-6,8,10 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azima et al. (US Patent 6,198,831) in view of Makivirta et al. (EP 0567 061).

Claims 1 and 4 share common elements.

Regarding **claims 1 and 4**, Azima discloses a method for operation of a loudspeaker (panel form loudspeaker, reads on a flat surface loudspeaker of claim 4), in which at least one oscillating coil (9 transducer) is mounted on a surface in the form of a plate (sound radiating panel) having predetermined characteristics (Figure 3, obvious that the plate has some predetermined characteristics), comprising:

stimulating at least one coil to oscillate electrically by a sound source (column 5, lines 15-17);

and in an operating mode, compensating for the frequency response of the loudspeaker by the filter device, which is connected between the sound source and the loudspeaker (Figure 2B, column 5, lines 25-27),

Azima teaches of a filter/correlator (64) and further teaches of a signal conditioner (65) to provider signal correction (column 5, lines 27-30) but fails to specifically teach of how the correction is implemented.

However, Makivirta discloses a method and system for compensating a loudspeaker system, comprising:

measuring the acoustic frequency response of the loudspeaker (64, filter/correlator, column 5, lines 25-26).

determining a frequency curve based on the measured acoustic frequency response (4, wideband filter, column 5,lines 16-);

determining an inverse frequency curve to the frequency curve (column 1, lines 50-55; column 5, lines 16-26);

simulating the inverse frequency curve in a filter device as a transfer function of the filter device (column 5, lines 16-26);

and in an operating mode, compensating for the frequency response based upon the transfer function (column 3,lines 15-24)).

It would have been obvious to modify Azima to use Makivirta's method of correcting by implementing a transfer function that is the inverse of frequency response (column 5, lines 20-25) to better optimize the power response of the loudspeaker.

Claim 2 claims the method of claim 1 with the exception that the transfer function of the filter device is simulated by digital filters.

Claim 5 claims the flat surface loudspeaker of claim 4, wherein the filter device is in the form of a digital filter.

Regarding **claims 2 and 5**, Azima teaches of a filter/correlator. Makivirta's apparatus is to be implemented with FIR filter (column 4, lines 50-53). This implies that any filter processing that is done is digital. Thus it would have been obvious to one of ordinary skill in the art to have the transfer function simulated by digital filters for the benefit of providing better equalization and providing an output signal with less distortion.

Claim 3 claims the method of claim 2, wherein the transfer function is formed by FIR (Finite Impulse Response filter), whose filter coefficients are derived from the inverse frequency curve. Azima as modified by Makivirta discloses that the transfer function is the frequency response of the inverse of the frequency response of the loudspeaker (Makivirta, column 5, lines 20-25). It is implicit that the coefficients are derived as claimed. All elements of claim 3 are comprehended by the rejection of claim 2.

All elements of **claim 6** are comprehended by the rejection of claim 5.

Claim 8 claims the flat surface loudspeaker of claim 5 wherein the filter device is equipped with a digital signal processor.

Claim 10 claims the flat surface loudspeaker of claim 6, wherein the filter device is equipped with a digital signal processor.

Azima as modified by Makivirta discloses a filter that is equipped with a digital signal processor (column 5, lines 15-25, filter 4). All elements of claims 8 and 10 are comprehended by the rejection of claims 6 and 6 respectively.

Claim 14 claims the method of claim 1, wherein at least one of oscillating coil has predetermined material characteristics. A coil is obviously present in a loudspeaker and it is obvious that it has some predetermined material characteristics. All elements of claim 14 are comprehended by claim 1. Therefore, claim 14 is rejected for reasons given above apropos of claim 14.

5. **Claims 7,9,11 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Azima et al. (US Patent 6,198,831) in view of Makivirta et al. (EP 0567 061) in view of Smith (GB 2 265 519 A).

Claim 7 claims the flat surface loudspeaker of claim 5 wherein the filter device includes a sample and hold element as the input element, connected via an analogue-to-digital converter to the digital filter, whose output is connected to a digital-to-analogue converter.

Claim 9 claims the flat surface loudspeaker of claim 6, wherein the filter device includes a sample and hold element as the input element, connected via an analogue-to-digital converter to the digital filter, whose output is connected to a digital-to-analogue converter.

Regarding **claims 7 and 9**, Azima as modified by Makivirta fails to disclose that the filter device includes a sample and hold element as claimed. Azima further teaches of Smith teaches of compensating for the non-linear responses of a flat panel loudspeaker including a D/A and an A/D converter connected to a filtering means (digital format converter, Figure 5), a re-linearising device (Figures 5 and 6) and a memory (sample and hold element) connected as claimed (page 4, lines 8—19). It

would have bee obvious to modify Azima as modified by Makivirta by having the filter include a sample and hold element in order to re-scale the input signal in order to a displacement which is proportional to the input signal.

Claim 11 claims the flat surface loudspeaker of claim 7, wherein the filter device is equipped with a digital signal processor.

Claim 12 claims the flat surface loudspeaker of claim 9, wherein the filter device is equipped with a digital signal processor.

Regarding **claims 11 and 12**, Azima as modified by Makivirta discloses a filter that is equipped with a digital signal processor (column 5, lines 15-25, filter 4). All elements of claims 11 and 12 are comprehended by the rejection of claims 7 and 9 respectively.

Conclusion

76. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VIVIAN CHIN
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